

PATENT

1. A continuously operating flare pilot for igniting flammable fluids discharged from the open end of a flare stack which is stable in high winds and other severe weather conditions comprising:

a fuel-air mixture inlet pipe;

a fuel-air mixture discharge nozzle connected to said fuel-air mixture inlet pipe;

a wind shield having a lower end attached to said fuel-air mixture discharge nozzle or said fuel-air mixture inlet pipe whereby a fuel-air mixture discharged from said fuel-air mixture discharge nozzle enters the interior of said wind shield; and

at least one opening in each of the opposite sides of said wind shield positioned at substantially right angles to the front of said wind shield facing said open end of said flare stack through which wind can flow into the interior of said wind shield.

2. The flare pilot of claim 1 wherein said wind shield further comprises an upstanding wall portion positioned at the front of said wind shield facing said open end of said flare stack.

3. The flare pilot of claim 2 which further comprises at least one opening in said upstanding wall portion of said open upper end of said wind shield for discharging rain and wind from inside said open upper end of said wind shield to the outside thereof.

4. The flare pilot of claim 1 which further comprises an outwardly extending wind capturing baffle attached to each of said opposite sides of said wind shield and positioned substantially around said openings therein.

5. The flare pilot of claim 4 wherein said wind catching baffles are formed in the shape of an inverted U.

6. The flare pilot of claim 4 wherein each of said wind catching baffles is positioned substantially around a plurality of openings in said wind shield.

7. The flare pilot of claim 6 wherein said plurality of openings in said wind shield within each baffle are orientated so that wind flowing through said openings is caused to flow downwardly towards the lower end of said wind shield.

8. The flare pilot of claim 1 wherein said wind shield is generally of cylindrical shape.

9. The flare pilot of claim 1 which further comprises a perforated flame stabilizer positioned within said wind shield attached to and surrounding said fuel-air nozzle.

10. The flare pilot of claim 1 which further comprises means for igniting said fuel-air mixture discharged from said fuel-air discharge nozzle attached to said wind shield.

11. The flare pilot of claim 8 wherein said means for igniting said fuel-air mixture within said wind shield is a flame front igniting apparatus.

12. The flare pilot of claim 1 which further comprises means for detecting the presence or non-presence of flame within said wind shield attached to said wind shield.

13. The flare pilot of claim 10 wherein said means for detecting the presence or non-presence of flame therein is an acoustic flame detecting apparatus.

14. The flare pilot of claim 1 which further comprises a flame igniting and detecting apparatus comprised of a pipe having an end attached to and communicated with the interior of said wind shield and a length whereby an ignition flame can be propagated through said pipe to ignite said fuel-air mixture in said wind shield and whereby sound produced by flames within said wind shield are conducted by said pipe to a location remote

from said flare pilot, an ignition flame front generator connected to said pipe at said remote location for producing an ignition flame that propagates through said pipe, a sound detector connected to said pipe at said remote location for detecting sound conducted by said pipe and for generating an electric signal representative of said sound, and electronic means for receiving said signal and indicating the presence of non-presence of said flame in response thereto.

15. The flare pilot of claim 4 wherein said wind shield includes at least one opening therein to relieve pressure when said fuel-air mixture is ignited.

16. The flare pilot of claim 4 wherein said wind shield includes a plurality of openings therein to relieve pressure when said fuel-air mixture is ignited.

17. In a method of igniting combustible fluids discharged from the open end of a flare stack with a continuously operating flare pilot positioned adjacent to the open end of the flare stack in high winds, rain and other severe weather, the flare pilot being comprised of a fuel-air mixture inlet pipe, a fuel-air mixture discharge nozzle connected to the fuel-air inlet mixture pipe and a wind shield having an open upper end and a lower end attached to the fuel-air mixture discharge nozzle or the fuel-air mixture inlet pipe, the improvement which comprises:

providing at least one opening in each of the opposite sides of said wind shield at substantially right angles to the front of said wind shield facing said open end of said flare stack through which wind can flow into the interior of said wind shield.

18. The method of claim 17 which further comprises the step of providing an outwardly extending wind capturing baffle attached to each side of said wind shield and positioned substantially around said opening therein.

19. The method of claim 18 wherein said wind catching baffles are formed in the shape of an inverted U.

20. The method of claim 18 wherein each of said wind catching baffles is positioned substantially around a plurality of openings in said wind shield.

21. The method of claim 20 wherein said plurality of openings in said wind shield within each baffle are orientated so that wind flowing through said openings is caused to flow downwardly towards the lower end of said wind shield.

22. The method of claim 17 which further comprises the step of:
providing said open upper end of said wind shield of said flare pilot with an upstanding wall portion positioned at the front of said wind shield which faces said open end of said flare stack.

23. The method of claim 22 which further comprises the step of providing at least one opening in said upstanding wall portion at the front of said wind shield for discharging rain and wind from inside said open upper end of said wind shield.

24. The method of claim 22 which further comprises the step of providing a plurality of openings in said upstanding wall portion of said wind shield for discharging rain and wind from inside said upper end of said wind shield to be outside thereof.

25. The method of claim 17 wherein said wind shield is generally cylindrical shape.

26. The method of claim 17 wherein said flare pilot further comprises a perforated flame stabilizer positioned within said wind shield attached to and surrounding said fuel-air nozzle.